

## ABSTRACT

A fully implantable nerve stimulation system includes an event-triggered, closed loop control unit [(50)] that detects physiological events, e.g. occurrence of heel contact or toe lift event, from nerve signals through one or more nerve cuff electrodes and delivers stimulation pulses to a nerve to produce a desired physiological response. The stimulation system includes a low-noise, low-power nerve signal amplifier [(180)], accelerometers [(156)] that detect the orientation angle of a patient's thigh and a battery powered processor [(150)] that selectively powers components in the system to detect said physiological events and deliver said stimulation pulses with a minimum of battery power.